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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,633	12/09/2003	Toshikazu Hamamoto	054160-5015-02	4718

7590 06/20/2005

MORGAN, LEWIS & BOCKIUS LLP  
1701 Market Street  
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EXAMINER
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DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/731,633

Applicant(s)

HAMAMOTO ET AL.

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18, 19, 22-27 and 30-34 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 18, 19, 22-27 and 30-34 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This Office Action is in response to the communication filed on 4/15/05. Applicant's arguments have been considered, but are not persuasive. Claims 18, 19, 22-27 and 30-34 are pending. Claims 1-17, 20-21 and 28-29 have been canceled. This Action is FINAL.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18, 19, 22-27 and 30-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato, JP 09-082360, as evidenced by Linden, Handbook of Batteries.

Kato teaches a nonaqueous electrolyte secondary battery comprising a positive electrode, a negative electrode and an electrolyte (0019). The electrolyte includes an electrolyte salt and a nonaqueous solvent. The salt may be LiBF<sub>4</sub> and the solvent may be ethylene carbonate, propylene carbonate, butyrolactone, dimethyl carbonate, diethyl carbonate or mixtures thereof (0046-0048). A compound which forms a layer on the positive electrode is added to the electrolyte (0039). An electrolyte comprising 10 wt% of the compound is prepared by adding 20 wt% of a vinyl sulfone to the electrolyte solution (see NIST printout that states "vinyl sulfone" is another name for "divinyl sulfone"). The negative electrode material may be coke or graphite (0044-0045). Coke has an interlayer spacing d<sub>002</sub> of 0.346 and graphite has an interlayer

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spacing d002 of 0.334-0.335 nm. This is evidenced by Linden, Handbook of Batteries, at Table 36.3 on page 36.6

Thus the claims are anticipated.

\*

Claims 18, 19, 22-27 and 30-34 are rejected under 35 U.S.C. 102(a) as being anticipated by Hamamoto et al., JP 11-329494.

Hamamoto teaches an electrolytic solution for a lithium secondary battery wherein the electrolytic solution includes an electrolyte dissolved in a nonaqueous solvent and a vinyl sulfone derivative of the formula shown in the abstract. In the formula R may be an alkyl group or an alkenyl group. The sulfone derivative may be a divinyl sulfone (paragraph 0013). The vinyl sulfone derivative is 0.1-10 wt% of the electrolytic solution (paragraph 0014). The various solvents and electrolyte of the instant claims are disclosed in paragraphs 0015-0018. The lithium battery includes a positive electrode and a negative electrode wherein the negative electrode includes graphite having a (d002) spacing of the (002) plane of 3.35-3.40Å (0.335-0.340 nm). See paragraph 0022. Hamamoto has a specific teaching of an electrolytic solvent mixture comprising propylene carbonate and dimethyl carbonate (paragraph 0024). See also Table 1.

Thus the claims are anticipated.

### ***Response to Arguments***

Applicant's arguments filed 4/15/05 have been fully considered but they are not persuasive.

Applicant argues Kato teaches a solid electrolyte, which is unlike the claimed invention wherein the divinyl sulfone is contained in a liquid electrolyte. However, the present claims do

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not recite the divinyl sulfone is contained in a liquid electrolyte. Furthermore, the specification teaches the divinyl sulfone “has a function of forming a passivation film” (page 4, lines 15-18). Thus, the divinyl sulfone is not contained in a liquid electrolyte. Furthermore, Kato teaches an electrolytic solution comprising a lithium salt dissolved in a nonaqueous solvent (liquid electrolyte) [0046-0048]. The divinyl sulfone of Kato, like that disclosed in the instant specification, forms a film. See also paragraph 0078.

Applicant argues Hamamoto is not available as prior art against the claimed invention because Applicant is entitled to the priority date of 7/13/99 of JP 11-198351. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**TRACY DOVE**  
**PRIMARY EXAMINER**

June 13, 2005